Fatmucket - Lampsilis siliquoidea

Abundance: Unknown

Status: NSSU NatureServe: G5 SNR

Population Status: Unknown

Limiting Factor: Unknown

Comment: None

Introduction

North America hosts the world's highest diversity of freshwater mussels (over 300 species), but more than half of the native mussels in the midwestern United States are listed as threatened or endangered (Cummings and Mayer 1992). Shells of the fatmucket (Lampsilis siliquoidea) are up to 12.7 cm (5 inches) in length and color is yellow to tan with green rays. These mussels display external sexual dimorphism (Cummings and Mayer 1992). Fatmucket live in the Mississippi River drainage from Louisiana to Nunavut and Montana to Quebec (NatureServe 2009). These bivalves are considered critically imperiled (Kansas) to secure (Alberta, Ontario, Indiana, and Ohio; NatureServe 2009). Fatmucket are widespread and common throughout nearly all of the range (Cummings and Mayer 1992). In Wyoming, the fatmucket's native range is the Bighorn-Wind, Tongue, middle Powder, and North Platte River drainages (Hoke 1979; Cvancara 2005). The status of the fatmucket appears to vary by drainage. Empty shells are uncommon in the North Platte and Laramie Rivers, and no live specimens are known from these sites. However, live fatmucket are common in locations on the Bighorn-Wind and Tongue Rivers. Freshwater mussels are filter feeders that remove fine organic matter from the water column (Smith 2001). The life cycle of aquatic mussels requires a host fish or amphibian during the larval stage. Larval mussels (glochidum) disperse while attached to their host and develop into adults if released on suitable substrate (Cummings and Graf 2010). Gravid females attract potential hosts with an extension of the mantel that acts as a lure. Natural hosts that are known for the cylindrical papershell and found in Wyoming include sauger (Sander canadensis), common shiner (Luxilus cornutus), sand shiner (Notropis ludibundus), and white sucker (Catostomus commersoni; OSUMD 2010). Other hosts of this mussel include walleye (Sander vitreus), yellow perch (Perca flavescens), pumpkinseed (Lepomis gibbosus), black crappie (Pomoxis nigromaculatus), white crappie (Pomoxis annularis), green sunfish (Lepomis cyanellus), bluegill (Lepomis macrochirus), largemouth bass (Micropterus salmoides), smallmouth bass (Micropterus dolomieu), and rock bass (Ambloplites rupestris). Raccoons, muskrats, otters, fishes, turtles, and birds all feed on mussels (Grabarkiewicz and Davis 2008). Wyoming's native mussel diversity is naturally low (7 species known), owing to the generally high elevation, headwater character of Wyoming's aquatic ecosystems, but is worthy of further study.

Habitat

The fatmucket mussel mostly inhabits small to medium sized streams and lakes in mud, sand, and gravel substrates (Hoke 1979; Beetle 1989; Cummings and Mayer 1992; Whaley et al. 2004).

Problems

- Pollution, changes in flow regime, extremely low flows, siltation, changes in substrate availability, and interrupting glochidial host fish relationships.

Conservation Actions

- Baseline population distribution, abundance, and structure data for the fatmucket are needed throughout its range in Wyoming to evaluate the need for and to help guide potential conservation actions. The viability of populations of this mussel in Wyoming is unknown.

Monitoring/Research

A population monitoring plan needs to be developed following a thorough baseline inventory of abundance and population structure.

Recent Developments

New live occurrences of fatmucket mussel were documented in lower Clear Creek (Powder River drainage), the Tongue River, and the Bighorn-Wind River by Wyoming Game and Fish Department personnel. These occurrences expanded knowledge of current distribution.

A comprehensive survey of Wyoming's native mussels and their habitats was funded by a State Wildlife Grant for fiscal years 2011 through 2013.

References

Smith, D. G. 2001. Pennak's Freshwater Invertebrates of the United States. John Wiley and Sons, Inc., New York. Pp. 638.

Beetle, D. E. 1989. Checklist of recent Mollusca of Wyoming. Great Basin Naturalist 49:637-645.

Cummings, K. S. and C. A. Mayer. 1992. Field guide to freshwater mussels of the Midwest. Illinois Natural History Survey Manual 5.

Cvancara, A. M. 2005. Illustrated key to Wyoming's freshwater mussels. Alan M. Cvancara, Casper, WY.

Hoke, E. 1979. Wyoming mussel distributions as revealed by survey activities conducted during the summer of 1978. Wyoming Game and Fish Department, Cheyenne, Wyoming.

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application] Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: January 14, 2010).

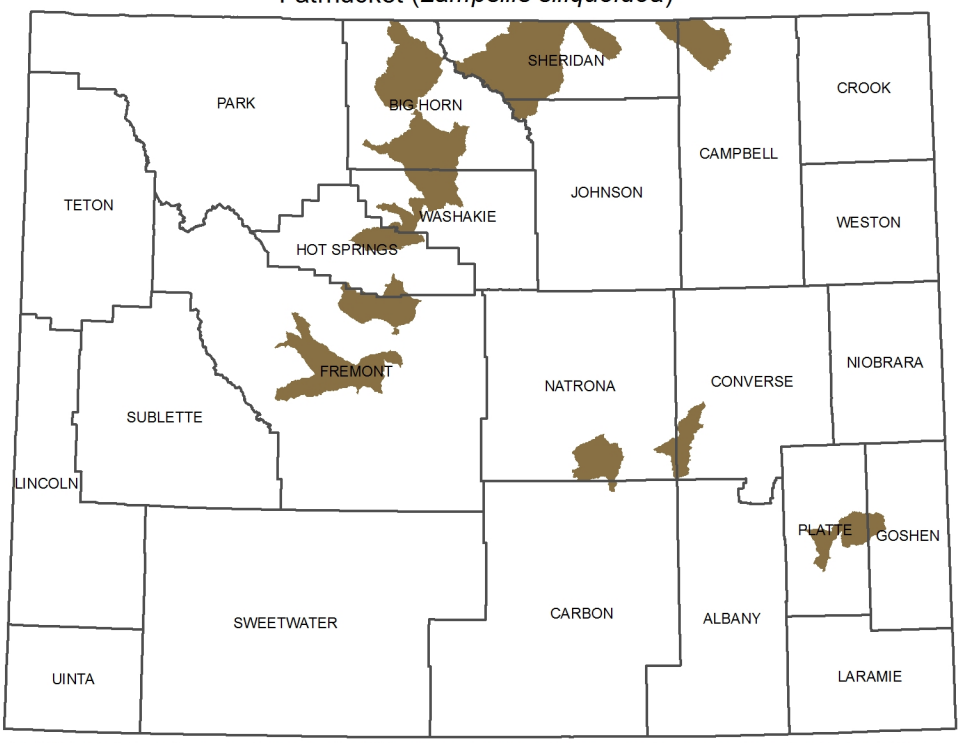
OSUMD. 2010. Mussel host database [web application]. Molluscs Division of the Museum of Biologicial Diversity, Ohio State University, Columbus, OH. Available: http://128.146.250.235/MusselHost/ (Accessed January 14, 2010).

Whaley, R. A., A. M. Cvancara, and K. A. Lippincott. 2004. House of Pearl. Wyoming Wildlife. 68:12-17.

Cummings, K. S., and D. L. Graf. 2010. Mollusca: bivalvia. Pages 309-384 in J. H. Thorp and A. P. Covich, editors. Ecology and Classification of North American Freshwater Invertebrates. Academic Press, New York.

Grabarkiewicz, J. and W. Davis. 2008. An introduction to freshwater mussels as biological indicators. EPA-260-R08-015. U.S. Environmental Protection Agency, Office of Environmental Information, Washington, DC.

Fatmucket (*Lampsilis siliquoidea*)



SOURCE: Digital maps of ranges for Wyoming Species of Greatest Conservation Need: April 2010. Wyoming Game and Fish Department. Note that brown indicates the current known range of the species.